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10/825,343	04/15/2004	Jong Shik Yoon	TI 37043	8658
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TEXAS INSTRUMENTS INCORPORATED				
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DALLAS, TX 75265				
EXAMINER				
NGUYEN, THANH T				
ART UNIT		PAPER NUMBER		
2813				
NOTIFICATION DATE		DELIVERY MODE		
07/22/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/825,343

Applicant(s)

YOON ET AL.

Examiner

THANH T. NGUYEN

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 6, 7, 21, 22 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) is/are withdrawn from consideration.
- 5) ☐ Claim(s) is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 21, 22 and 24-29 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claim(s) are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. .
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF-08)
Paper No(s)/Mail Date
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other:

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1, 6-7, 21-22, and 24-29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claims 25-29 are objected to because of the following informalities: claims 25-29 are duplicate with claims 6-7, 21-22 and part of claim 1. It is suggested to delete claims 25-29. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 24-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation "each stress adjustor formed adjacent the active area is positioned a *substantially constant distance* from the active area for approximately the entire length of the

stress adjustor" in claim 24 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor . It is suggested to delete the limitations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6-7, 21-22 are stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sanuki (U.S. Patent No. 7,019,380) in view of an ordinary skill in the requisite art, previously applied.

Regarding to claim 1, Sanuki teaches a method of manufacturing a Metal Oxide Semiconductor (MOS) transistor, comprising:

forming an active area (s/d) in a substrate (10), wherein said active area (20, 40) is bounded by an isolation structure (30/31, 50/51, fig. 5-8); and

placing at least one stress adjustor (23, 25) adjacent said active area (20, 40), wherein said stress adjustor (23, 25, area located between trenches 51/50, 31/30, it is noted that the same structure would provide the same function) is positioned to modify a mobility of a majority carrier within a channel region of said MOS transistor (see col. 6, lines 3-7), wherein placing said stress adjustor(23, 25) includes removing portions of said silicon substrate (10) to form at

least two trenches (50/51, 30/31, see figures 5-8), wherein a portion of said silicon substrate (10) remaining between said at least two trenches (50/51, 30/31) forms said stress adjustor (23, 25) and filling said trenches (50/51, 30/31, see figures 5-8, col. 5, lines 33-43, col. 6, lines 56-64) with a material comprising said isolation structure, wherein said stress adjustor (23, 25) and a first of said at least two trenches (50/51, 30/31) are located between a portion of a second of said at least two trenches (50/51, 30/31) and said active area (20, 40),

wherein a long dimension of the at least one stress adjustor (23) is placed parallel to a flow of current through said MOS transistors (21) and is substantially equal to a gate (21) length of said MOS transistor (see figures 5, 8), the stress adjustor (23/25) being positioned proximate a channel region of the MOS transistor (21, see figures 5-8).

Regarding to claims 6-7, the stress adjustor (23, 25) is configured to decrease a compressive stress imparted from the isolation structure to the channel region (see figure 5-8, col. 6, lines 5-11, reference teach same structure and material hence it would inherently provide the same result of decreasing/increasing compressive stress imparted from isolation structure to the channel region).

Regarding to claim 21, wherein the step of placing the at least one stress adjustor (23, 25) adjacent the active area (20, 40) comprises placing the at least one stress adjustor (23, 25) between about 50 nanometers and about 300 nanometers from said active area (see col. 5, lines 10-22, figures 5-8).

Regarding to claim 22, wherein a long dimension of the at least one stress adjustor (25) is placed perpendicular to a flow of current through said MOS transistors (21) and is substantially equal to a gate (21) width of said MOS transistor (see figures 5, 8).

Sanuki do not clearly recite stress adjustor and the specific length of the gate and the stress adjustor. However, the region between the trenches (50/51, 30/31) has the same material and the same structure as the instant invention describe. Hence, it is obvious that is stress adjustor.

It would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made to optimize the concentration of hydrogen within the dielectric layer, since it has been held that where the general conditions of a claim are disclosed in the prior art (i.e.- specific length of the gate and the stress adjustor), discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233 (CCPA 1955).

The specification contains no disclosure of either the critical nature of the claimed arrangement (i.e.- specific length of the gate and the stress adjustor) or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen limitations or upon another variable recited in a claim, the applicant must show that the chosen limitations are critical. In re Woodruff, 919 F.2d 1575, 1578 (FED. Cir. 1990).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would forming a gate length and the stress adjustor length substantially equal in process of Sanuki because determining an optimum or workable ranges involves only routine skill in the art.

Response to Arguments

Applicant's arguments with respect to claims 1, 6-7, 21-22, and 24-29 have been considered but are moot in view of the new ground(s) of rejection.

Applicant contends that Sanuki does not teach wherein a long dimension of the at least one stress adjustor is placed parallel to a flow of current through said MOS transistors and is substantially equal to a gate length of said MOS transistor, the stress adjustor being positioned proximate, a channel region of the MOS transistor. In response to applicant that Sanuki clearly teaches in figures 5-8 a long dimension of the at least one stress adjustor (23) is placed parallel to a flow of current through said MOS transistors (21) and is substantially equal to a gate (21) length of said MOS transistor (see figures 5, 8), the stress adjustor (23) being positioned proximate a channel region of the MOS transistor (21, see figures 5-8). It is noted that the term substantial is a relative term. Therefore, the length does not have to be exact or the same.

Applicant contends Sanuki provide little or no suggestion to modify the lengths of the element region. In response to applicant that the specification contains no disclosure of either the critical nature of the claimed arrangement (i.e.- specific length of the gate and the stress adjustor) or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen limitations or upon another variable recited in a claim, the applicant must show that the chosen limitations are critical. In re Woodruff, 919 F.2d 1575, 1578 (FED. Cir. 1990).

KSR Int'l v. Teleflex Inc., 127 S.Ct. 1727 (2007), Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case

of patents combining previously known elements, deprive prior inventions of their value or utility. When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under §103.

When a work is available in one field, design incentives and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, §103 likely bars its patentability. Moreover, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person's skill.

It is common sense that familiar items may have obvious uses beyond their primary purposes, and a person of ordinary skill often will be able to fit the teachings of multiple patents together like pieces of a puzzle. See *KSR international v. Teleflex*, US Supreme Court, April 30, 2007.

In *Sakraid v. AG Pro, Inc.*, 425 U. S. 273(1976), the Court derived from the precedents the conclusion that when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious. *Id.*, at 282. The principles underlying these cases are instructive when the question is whether a patent claiming the combination of elements of prior art is obvious. When a work is available in one field of endeavor, design incentives and other

market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

When a work is available in one field, design incentives and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation, and would see the benefit of doing so, §103 likely bars its patentability. Moreover, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person's skill. See *KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727 (2007).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on (571) 272-1702. The fax phone number for this Group is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairdirect.uspto.gov>. Should you have questions on access to thy Private PAIR system, contact the Electronic Business center (EBC) at 866-217-9197 (toll-free).

/Thanh T. Nguyen/

Primary Examiner, Art Unit 2813

Application Number**Application/Control No.**

10/825,343

**Applicant(s)/Patent under
Reexamination**

YOON ET AL.

Examiner

THANH T. NGUYEN

Art Unit

2813